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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/762,559

01/23/2004

Katsunori Takada

K06-165935M/TBS

3219

21254 7590 12/19/2008
MCGINN INTELLECTUAL PROPERTY LAW GROUP, PLLC
8321 OLD COURTHOUSE ROAD
SUITE 200
VIENNA, VA 22182-3817

EXAMINER

MCGUTHRY BANKS, TIMA MICHELE

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

12/19/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/762,559	Applicant(s) TAKADA ET AL.	
	Examiner TIMA M. MCGUTHRY-BANKS	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5,7,9,11 and 13-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,5,7,9,11 and 13-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/8/08</u> . | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1793

DETAILED ACTION

Status of Claims

Claims 1, 3, 5, 7, 9 and 11 are currently amended, Claims 2, 4, 6, 8, 10, 12, 20 and 21 are cancelled, and Claims 12-19 are as previously presented.

Claim Rejections - 35 USC § 103

Claims 1, 2, 5, 7 and 13-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanisawa et al (US 6,547,890 B2).

Kanisawa et al is applied as discussed in the office action mailed 6/12/2008. Regarding the negative limitation Cr and Al, Al reads on zero (0.2% or less in column 5, line 14) and Cr is optional (column 5, lines 35-37). Claims 1 and 5 are still product claims; the limitation of hot rolling and high frequency hardening are product by process limitations. It would have been obvious to one of ordinary skill in the art at the time the invention was made that the steel wire rod taught by Kanisawa et al reads on the claimed steel for use in a high strength pinion shaft, since Kanisawa et al teaches overlapping compositional ranges; in the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a *prima facie* case of obviousness exists. See MPEP § 2144.05. Even though product-by-process claims are limited and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same or as obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. See MPEP § 2113.

Art Unit: 1793

Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanisawa et al in view of Makino et al (US 2002/0173363 A1).

Kanisawa et al teaches a steel wire rod with the following composition (abstract; column 4 to column 5) with respect to the claims in wt%:

Element	Claims 1, 5, and 9	Kanisawa et al
C	0.45-0.55%	0.1-0.5%
Si	0.21-0.45%	0.01-0.5%
Mn	0.50-1.20%	0.3-1.5%
P	0.025% or less	0.035% or less
S	0.025% or less	0.035% or less
Mo	0.15-0.25%	0.1-1.0%
B	0.0005-0.005%	0.005% or less
Ti	0.005-0.010%	0.005-0.04%
N	0.015% or less	not taught

In the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a *prima facie* case of obviousness exists. See MPEP § 2144.05. The steel rod comprises ferrite, pearlite and bainite (Claim 2, lines 54-57). The diameter reduction of 20% or larger occurs at a minimum temperature of 750 C (column 19, lines 21-38). The material hardness is controlled to 250-700 Hv (column 4, lines 21 and 22). However, Kanisawa et al does not teach high frequency hardening the steel as claimed.

Makino et al teaches a power transmission mechanism. Shafts of high torque are generally formed by subjecting steel to high frequency hardening [0003]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to further treat the steel of Kanisawa with high frequency hardening, since Makino et al teaches that this step increases shaft strength in consideration of plastic workability, machinability and cost [0003].

Art Unit: 1793

Response to Arguments

The rejection based on Ochi, Eberle et al and Yoshinaga et al are withdrawn based on the amendments to the claims. Applicant argues that Kanisawa et al does not teach the amended limitation of hot rolling the steel as claimed. This argument is addressed above in the rejection summary. Additionally, the features, hardness and surface hardness is not claimed in Claims 1, 5 or 9.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. JP 08-253842 teaches steel for induction hardening shaft parts with 0.015-0.05% Al. JP 08-053714 teaches shaft parts for machine structural use containing 0.015-0.05% Al. JP 02-179841 teaches non-heat treated steel for induction hardening with 0.030-0.1% Al.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 1793

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIMA M. MCGUTHRY-BANKS whose telephone number is (571)272-2744. The examiner can normally be reached on M-F 7:00 am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/
Supervisory Patent Examiner, Art Unit
1793

/T. M. M./
Examiner, Art Unit 1793
19 December 2008